Testimony of

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Public Reporting of Hospital-Acquired Infection Rates: Empowering Consumers, Saving Lives

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Good afternoon, members of the Subcommittee on Oversight and Investigations. I thank you for this opportunity to come before you today to discuss the critical issue of public reporting of hospital-acquired infections, also referred to as healthcare-associated infections, nosocomial infections, or simply hospital infections.

I should point out that I am a convert. For 30 years I have performed research on this problem and pushed hard for hospitals to measure their infection rates and use the information to reduce their infection risks of their patients, but not to report them publicly. But when Lisa McGiffert and the Consumer's Union started this national movement for public reporting, they created a new perspective that has caused me, like most experts in the field, to rethink my position and now to become a strong supporter of public reporting.

In 1973 right out of my medical residency, I joined the U.S. Public Health Service as an officer in the Epidemic Intelligence Service at CDC and ended up serving there for 10 years. I worked in the Hospitals Infections Branch, a small unit doing the early studies on what then was a newly emerging disease problem in hospitals, about which no one knew very much. During my 10 years there, I worked full time in research on the problem, developing definitions for the infections, methods of measuring them, and ways of using the measurements to reduce the infection risks. There I directed a national study called the SENIC Project (Study on the Efficacy of Nosocomial Infection Control), in which we studied a representative sample of U.S. hospitals to determine what approaches actually lead to reductions in hospital infection rates. In that project, we studied over 300,000 patients in several hundred hospitals all over the country and found out what works. This remains the only study ever to test whether quality improvement programs are effective.

We found that measuring the hospital infection rates and then using those rates to direct control measures led to large reductions of the infection rates over 5 years; whereas, in hospitals that did not measure infections rates, the rates either did not change or went up over the 5 year period. In other words, we proved the old saw "*what gets measured gets done*," or as we say about hospital infections, "*To measure is to control.*"

From this finding and other scientific information, CDC recommended that all hospitals voluntarily measure their infection rates to reduce them to the irreducible minimum. Subsequently, CDC and other researchers have done extensive research into how to do the measurements so as to get the biggest impact in reducing infection risks. In a computer literature search, I found over 18,000 scientific papers on the epidemiology, prevention and control of nosocomial infections since 1970. So you can see that there has been a tremendous amount of research focused on this problem, and one of the main findings is that certain types of measurements of infection rates has a powerful impact in reducing infection risks to patients.

The good news is that, in the past couple of decades, many hospitals have adopted these recommendations and have reduced their infection rates substantially; the bad news is that another sizeable group of hospitals have not adopted this approach.

Years ago hospitals were very defensive about infection rates. We were very concerned that releasing infection rates publicly would lead to obstruction of infection rate measurements within the hospitals and paradoxically to *increasing* infection risks for patients. But over the years, as measurement became routine—and useful—in many hospitals, the defensiveness has declined. So when Lisa McGiffert and the Consumers Union began pushing for public reporting, we encountered little objection from hospitals, and instead we saw a way to get all hospitals doing the types of measurement they should have been doing all along. That's why I became a convert.

However, there still are some scientific problems with reporting hospital infection rates to the public that must be addressed in the state reporting systems. These problems are real. If not addressed, they could cause public reporting to have unintended negative consequences for patients. And these problems are what well meaning critics of public reporting cite as the basis for their opposition. Let me trace several of them.

First, there is the problem of accuracy in identifying the infections. These infections are hard to discover. An expert infection control professional must apply standardized definitions. Many infections occur after the patient goes home. If you just rely on the discharge codes assigned by a clerk in the medical records department, you will miss and make many errors. Codes depend on what has been documented, but the information is written by the physician in a way that considers important infection criteria. The effect is that hospitals that do the best job will have higher infection rates than those who give it little effort or who rely on clerks not trained in infection control, and so the publicly reported data would tend to direct patients to the more careless hospitals rather than to the careful ones who are reducing their infection rates.

Second, many consumers and advocates want very simple numbers of infections that they can understand without much thought or study. Experts are rightly concerned about this because simple numbers are misleading. Let's take a simple example: suppose one hospital in town has 25 to 30 surgical infections per month, and the second hospital has twice as many, 50 to 60 surgical infections per month. The consumers would understand these numbers easily and would decide to go to the first hospital because it has fewer surgical infections. But suppose the first hospital performed only one-quarter as many operations as the second. This would mean that the actual risk of infection after surgery would be twice as high in the first hospital. Again, the simple numbers would appear easier to understand but would lead the consumers to a much higher risk hospital. The solution to this problem is to report *rates* of infection—the number of infections divided by the number of operations, a percentage—rather than simple numbers of infections. It takes a little thought to understand a percentage instead of a number, but it gives the consumer a truer measure of the risk in different hospitals.

Third, a more subtle, but equally serious problem is with differences in the intrinsic risk of the patient mix in different hospitals. Suppose that two hospitals perform the same number of operations each month but the first hospital does mainly elective hernia operations and coronary bypass operations on stable business executives, and the other hospital is a level 3 trauma center operating on gunshot wounds to the chest and abdomen and people with fresh heart attacks. The surgical infection rates in the second hospital will be several times higher than those in the first hospital, but it is likely that the surgeons in the second hospital have better outcomes when you compare apples to apples. Again, consumers seeing simple infection rate comparisons might choose the first hospital for their coronary bypass operation even though their chance of a complication might be far less in the second hospital. The solution to this problem is to apply what's called a *multivariate risk index* to level the playing field on the underlying risk of infection—that is to compare apples to apples. I developed the first index for this purpose, and now a modified version of this, called the NNIS (National Nosocomial Infection System) Risk Index, is used all over the world. Again, it takes a little more thought to understand, but it gives the consumer a truer measure of the risk in different hospitals.

From these examples, you can see why well meaning experts would oppose public reporting without the qualifiers I've just described. Today that opposition exists because rightly concerned consumer activists want simple information on their healthcare facilities. This information will end up misleading those very consumers, directing them to the riskiest hospitals rather than to the safest ones, rewarding the hospitals with lenient infection control programs and penalizing the most vigorous programs.

Right now a number of states are developing statewide public reporting systems and trying different approaches. I am a member of the expert panel appointed by our Texas state legislature to design our state system. We are putting together a plan that will require all Texas hospitals to perform the type of risk-adjusted infection rate measurements that will translate into reduced infection risks, and then they will upload their datasets to the Texas state health department as a byproduct of doing what will control their infection risks. We are not going to create some simplistic administrative activity that takes our infection prevention and control professionals away from productive measurement. The data, the state of Texas intends on reporting publicly will be the most meaningful information for consumers to consider in assessing the safety of different hospitals.

I understand that thirty-four other states have introduced, considered or passed bills for public reporting. Some states are planning to have their hospitals' infection prevention and control professionals submit their data to the CDC network which may or may not be reported to their state and then to the CDC. The National Quality Forum is going to develop consensus standards which may not address *how* data is collected and reported. In Texas, we are going to handle the whole thing within our state and then provide CDC with our collective data for research purposes.

I personally am not in favor of mandating reporting of infection rates on all states until additional research and methods have been tested and proven. I think the various state legislative initiatives will provide information on what works best, and then a national consensus may take shape naturally. There is much to learn in this early stage from a diversity of state experiments.

Above all, the scientific evidence is clear. Measurement of infection rates is an essential component of controlling the infection risks in a hospital. *What gets measured gets controlled.* Sophisticated measurement approaches, including risk adjustment, can make the process valid and insightful. Overly simplistic approaches, while immediately attractive, are regressive for controlling infection risks and misleading to consumers. I see both industry leading organizations such as APIC (Association for Professionals in Infection Control and Epidemiology), SHEA (Society for Healthcare Epidemiology of America) and the Consumers Union playing constructive roles in driving this movement in a productive direction at the state level, where it should remain focused for now. I expect that the movement will eventually lead to meaningful reduction in hospital infection risks as well as to better informed consumers.